

AMENDMENTS TO THE CLAIMS

The current listing of the claims replaces all previous amendments and listings of the claims.

Claim 1 (Currently Amended): A data control apparatus comprising:

an extension devices interface to which a plurality of extension devices are connectable;

a recording media interface to which predetermined external recording media are detachably applied;

a rewritable program memory for a main body to store a control program of the main body;

a device control means for controlling the respective devices and for processing input image data on the basis of the control program of the main body; and

an image control means to achieve control based on said device control means for recording and outputting the image data which have been processed and outputting them to any one of said extension devices;

said extension devices interface including a control data communication means for transferring and receiving control data with said extension devices, and a ~~down-load~~ download exclusive communication means for ~~down-loading~~ downloading a control program of the extension device of said extension device.

Claim 2 (Currently Amended): A data control apparatus as claimed in claim 1, wherein said device control means controls said image control means to transfer the control program stored in said external recording medium to said program memory for the main body when said external recording medium in which said control program of the main body is stored is applied to said recording media interface, and

said device control means controls said image control means to transfer the control program stored in said external recording medium through said ~~down-load~~ download exclusive communication means to a program memory of corresponding said extension device when said external recording medium in which said control program of the extension device is stored is applied to said recording media interface.

Claim 3 (Currently Amended): An image forming apparatus comprising:

a readout control means to read out an image of a manuscript;

a writing control means to output the image on a recording paper; and

a data control apparatus to make said readout control means reading out the image of the manuscript and to make said writing control means recording and outputting the read out image,

said data control apparatus including an extension devices interface to which a plurality of extension devices are connectable,

a recording media interface to which predetermined external recording media are detachably applied,

a rewritable program memory for a main body to store a control program of the main body,

a device control means for controlling the respective devices and for processing input image data on the basis of the control program of the main body, and

an image control means to achieve control based on ~~the control of~~ said device control means for recording and outputting the image data which have been processed and outputting them to any one of said extension devices,

said extension devices interface having a control data communication means for transferring and receiving control data with said extension devices, and a ~~down-load~~

download exclusive communication means for ~~down-loading~~ downloading a control program of the extension device of said extension devices.

Claim 4 (Currently Amended): An image forming apparatus as claimed in claim 3, wherein said device control means controls said image control means to transfer the control program stored in said external recording medium to said program memory of the main body when said external recording medium in which said control program of the main body is stored is applied to said recording media interface, and

said device control means controls said image control means to transfer the control program stored in said external recording medium through said ~~down-load~~ download exclusive communication means to a program memory of the corresponding said extension device when said external recording medium in which said control program of the extension device is stored is applied to said recording media interface.

Claim 5 (Currently Amended): A data control method comprising the steps of:
overwriting a program ~~of a main body~~ registered in a program memory of ~~the~~ a main body of a data control apparatus;

~~down-loading~~ downloading control programs of extension devices to a plurality of extension devices which are connected to an extension device interface of said data control apparatus;

transferring and receiving control data between said extension devices and said data control apparatus through control data communication means; and

~~down-loading~~ downloading said control program for the extension devices through ~~down-load~~ download exclusive communication means.

Claim 6 (Currently Amended): A data control method as claimed in claim 5, wherein said method comprises the steps of:

transferring the control program stored in said external recording medium to said program memory of the main body when an external recording medium in which said control program of the main body is stored is applied to said recording media interface of the data control apparatus; and

transferring the control program stored in said external recording medium through said ~~down-load~~ download exclusive communication means to a program memory of corresponding said extension device when an external recording medium in which said control program of the extension device is stored is applied to said recording media interface of the data control apparatus.

Claim 7 (Currently Amended): A data control method as claimed in claim 5 or 6, wherein said control data communication means and said ~~down-load~~ download exclusive communication means are of asynchronous or synchronous serial communication.

Claim 8 (Currently Amended): A data control apparatus as claimed in claim 1 or 2, wherein said ~~down-load~~ download exclusive communication means transfers said control program of the extension device in the same communication method as said control data communication means.

Claim 9 (Currently Amended): A data control apparatus as claimed in claim 1 or 2, wherein said ~~down-load~~ download exclusive communication means is different from said control data communication means in at least one of the data transfer rate thereof or the data format thereof.

Claim 10 (Currently Amended): A data control method as claimed in claim 5, wherein said ~~down-load~~ download exclusive communication means is different from said control data communication means in at least one of the data transfer rate thereof or the data format thereof.

Claim 11 (Currently Amended): An image forming apparatus as claimed in claim 3 or 4, wherein said ~~down-load~~ download exclusive communication means transfers said control program of the extension device in the same communication method as said control data communication means.

Claim 12 (Currently Amended): An image forming apparatus as claimed in claim 3 or 4, wherein said ~~down-load~~ download exclusive communication means is different from said control data communication means in at least one of the data transfer rate thereof or the data format thereof.

Claim 13 (Currently Amended): A data control apparatus as claimed in claim 8, wherein said ~~down-load~~ download exclusive communication means is different from said control data communication means in at least one of the data transfer rate thereof or the data format thereof.

Claim 14 (Currently Amended): A data control apparatus as claimed in claim 1 or 2, wherein said control data communication means and said ~~down-load~~ download exclusive communication means are of asynchronous or synchronous serial communication.

Claim 15 (Currently Amended): An image forming apparatus according to claim 3 or 4, wherein said control data communication means and said ~~down-load~~ download exclusive communication means are of asynchronous or synchronous serial communication.

Claim 16 (New): A data control apparatus comprising:

- an extension devices interface to which a plurality of extension devices are connectable;
- a recording media interface to which predetermined external recording media are detachably applied;
- a rewritable program memory for a main body to store a control program of the main body;
- a device controller configured to control the respective devices and to process input image data on the basis of the control program of the main body; and
- an image controller configured to record and output the processed image data to any one of the extension devices based on the device controller;

wherein the extension devices interface includes a control data communicator and a download exclusive communicator,

wherein the control data communicator is configured to transfer and receive control data with the extension devices, and

wherein the download exclusive communicator is configured to transfer from the extension devices interface to one of the extension devices a control program to be updated to control one of the extension devices.

Claim 17 (New): The data control apparatus according to claim 16, wherein, when the program to be updated is activated, the data control apparatus is configured to select of

the plurality of extension devices or the main body as a target for download, and executes the download to the selected extension device or the main body.

Claim 18 (New): The data control apparatus according to claim 16, wherein said device control controls said image controller to transfer the control program stored in the external recording medium to the program memory for the main body when the external recording medium in which the control program of the main body is stored is applied to the recording media interface, and

the device controller controls the image controller to transfer the control program stored in the external recording medium through the download exclusive communicator to a program memory of a corresponding one of the extension devices when the external recording medium in which the control program of the extension device is stored is applied to the recording media interface.

Claim 19 (New): The data control apparatus according to claim 16, wherein a transfer rate at a time of downloading the control program is higher than a transfer rate at a time of another control data transfer.

Claim 20 (New): A data control apparatus comprising:
an extension devices interface to which a plurality of extension devices are connectable;
a recording media interface to which predetermined external recording media are detachably applied;
a rewritable program memory for a main body to store a control program of the main body; and

a device controller configured to control the respective devices and to process input image data on the basis of the control program of the main body;

wherein the extension devices interface includes a control data communicator and a download exclusive communicator,

wherein the control data communicator is configured to transfer and receive control data with the extension devices, and

wherein the download exclusive communicator is configured to transfer from the extension devices interface to one of the extension devices a control program to be updated to control one of the extension devices.

Claim 21 (New): A data control apparatus as claimed in claim 20, wherein the device controller is configured to control an image controller to transfer the control program stored in the external recording medium to the program memory for the main body when the external recording medium in which the control program of the main body is stored is applied to the recording media interface, and

the device controller is configured to control the image controller to transfer the control program stored in the external recording medium through the download exclusive communicator to a program memory of a corresponding one of the extension devices when the external recording medium in which the control program of the extension device is stored is applied to the recording media interface.

Claim 22 (New): An image forming apparatus comprising:

a readout controller configured to read out an image of a document;

a writing controller configured to output the image on a recording medium; and

a data control apparatus to make the readout controller read out the image of the document and to make the writing controller record and output the read out image,

the data control apparatus including an extension devices interface to which a plurality of extension devices are connectable,

a recording media interface to which predetermined external recording media are detachably applied,

a rewritable program memory for a main body to store a control program of the main body, and

a device controller configured to control the respective devices and for processing input image data on the basis of the control program of the main body,

wherein the extension devices interface includes a control data communicator and a download exclusive communicator,

wherein the control data communicator is configured to transfer and receive control data with the extension devices, and

wherein the download exclusive communicator is configured to transfer from the extension devices interface to one of the extension devices a control program to be updated to control one of the extension devices.

Claim 23 (New): An image forming apparatus as claimed in claim 22, wherein the device controller is configured to control an image controller to transfer the control program stored in the external recording medium to the program memory of the main body when the external recording medium in which the control program of the main body is stored is applied to the recording media interface, and

the device controller is configured to control the image controller to transfer the control program stored in the external recording medium through the download exclusive

communicator to a program memory of corresponding one of the extension devices when the external recording medium in which the control program of the extension device is stored is applied to the recording media interface.

Claim 24 (New): A data control method comprising the steps of:

overwriting a program registered in a program memory of a main body of a data control apparatus;

downloading control programs of extension devices to a plurality of extension devices which are connected to an extension device interface of the data control apparatus;

transferring and receiving control data between the extension devices and the data control apparatus through control data communicator; and

downloading the control program for the extension devices through a download exclusive communicator.

Claim 25 (New): A data control method as claimed in claim 24, wherein the method comprises the steps of:

transferring the control program stored in the external recording medium to the program memory of the main body when an external recording medium in which the control program of the main body is stored is applied to the recording media interface of the data control apparatus; and

transferring the control program stored in the external recording medium through the download exclusive communicator to a program memory of the corresponding extension device when an external recording medium in which the control program of the extension device is stored is applied to the recording media interface of the data control apparatus.

Claim 26 (New): A data control method as claimed in claim 24, wherein the control data communicator and the download exclusive communicator are of asynchronous or synchronous serial communication.

Claim 27 (New): A data control apparatus as claimed in claim 20, wherein the download exclusive communicator is configured to transfer the control program of the extension device in the same communication method as the control data communicator.

Claim 28 (New): A data control apparatus as claimed in claim 20, wherein the download exclusive communicator is different from the control data communicator in at least one of the data transfer rate thereof or the data format thereof.

Claim 29 (New): A data control method as claimed in claim 24, wherein the download exclusive communicator is different from the control data communicator in at least one of the data transfer rate thereof or the data format thereof.

Claim 30 (New): An image forming apparatus as claimed in claim 22, wherein the download exclusive communicator is configured to transfer the control program of the extension device in the same communication method as the control data communicator.

Claim 31 (New): An image forming apparatus as claimed in claim 22, wherein the download exclusive communicator is different from the control data communicator in at least one of the data transfer rate thereof or the data format thereof.

Claim 32 (New): A data control apparatus as claimed in claim 27, wherein the download exclusive communicator is different from the control data communicator in at least one of the data transfer rate thereof or the data format thereof.

Claim 33 (New): A data control apparatus as claimed in claim 20, wherein the control data communicator and the download exclusive communicator are of asynchronous or synchronous serial communication.

Claim 34 (New): An image forming apparatus according to claim 22, wherein the control data communicator and the download exclusive communicator are of asynchronous or synchronous serial communication.